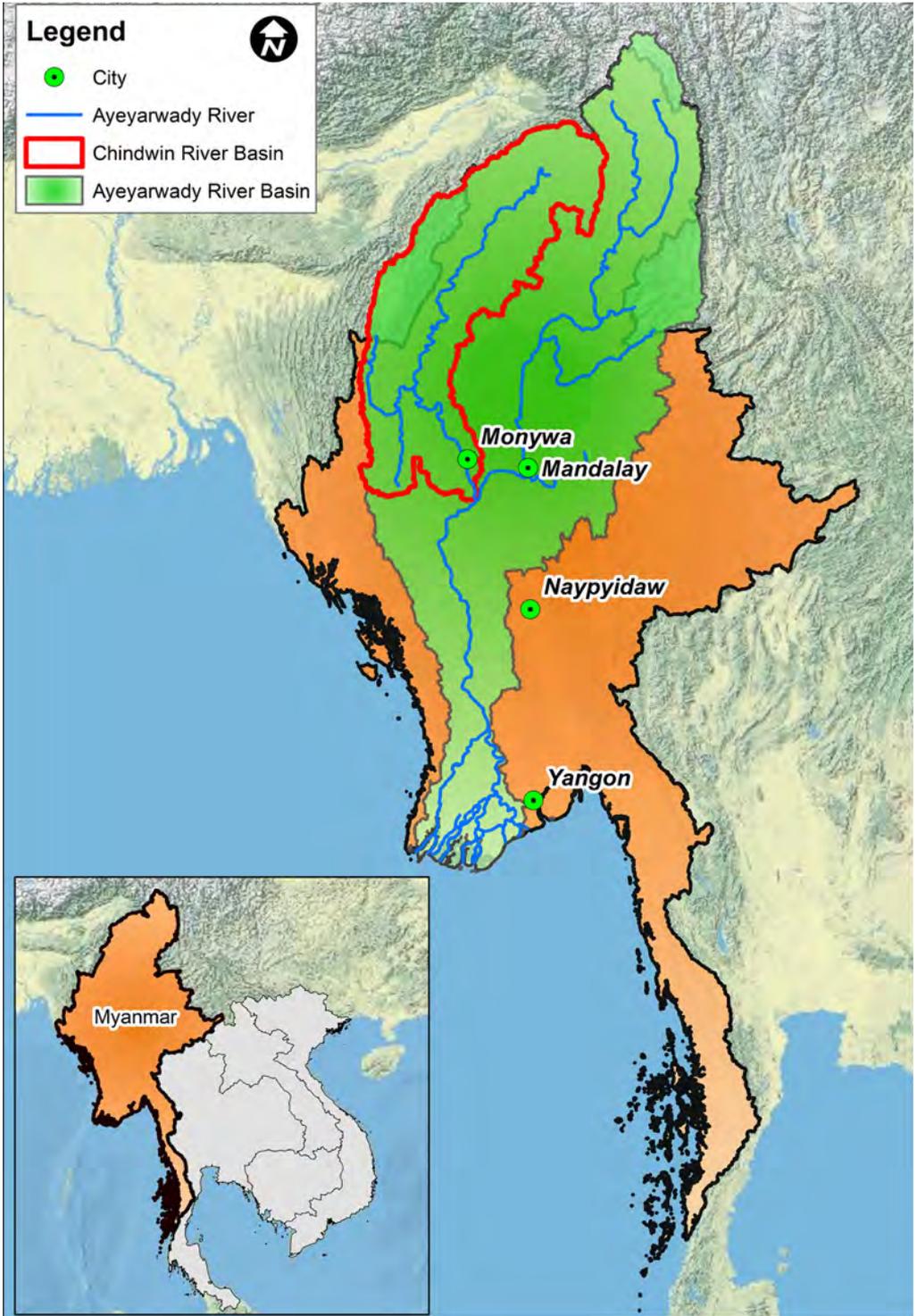




**SEI Environmental  
Strategy for Myanmar  
(2019-2028)**



# **SEI Environmental Strategy for Myanmar (2019-2028)**



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An aerial photograph showing a group of fishermen on a riverbank. They are gathered around several large, light-colored fishing nets that are laid out on the grass. The nets are filled with small fish. One fisherman is standing in a small wooden boat on the river, which is also filled with fish. The riverbank is covered in green grass and some small yellow flowers. The water is a muddy brown color. The overall scene depicts a traditional fishing activity in a rural setting.

# Our Vision:

A sustainable and  
prosperous future  
for Myanmar

## Part 1: Introduction

The Stockholm Environment Institute (SEI) is an international not-for-profit research and policy organization that addresses environment and development challenges. We connect science and decision-making to develop solutions for a sustainable future for all.

SEI has over 240 employees in ten centres in seven countries (Colombia, Estonia, Kenya, Sweden, Thailand, United Kingdom, and the USA) representing a broad range of academic disciplines. SEI Asia based in Bangkok, Thailand has been working on environmental challenges in Myanmar since 2013 in particular on natural resources management and supporting Myanmar's institution-building.

With this Strategy, SEI Asia is laying the groundwork for a new chapter of success that builds on our achievements and lessons learned after five years collaborating with our partners and stakeholders in Myanmar. Our network of partners is vital to our success in Myanmar. We take this opportunity to urge our partners and stakeholders to join in our efforts to fulfil our shared vision of a sustainable and prosperous future for all.

This Strategy will guide our research and collaboration on environment and development for the next 10 years (2019-2028) as we continue our mission to support decision-making and to engender change towards sustainable development in Asia. We provide integrative knowledge that bridges science and policy in the field of environment and development. We believe that this Strategy, underpinned by the mobilization of sufficient resources, will allow us to achieve the results our partners and stakeholders in Myanmar require and deserve. We have the aspiration that these results will help support a transformative change in Myanmar leading towards an environmentally sound and socially equitable economy that will provide a range of benefits to all people in Myanmar including local communities and other vulnerable groups in the country.

This Strategy recognizes that innovation, adaptation, resilience and long-term partnerships are key to our future success. Thus, this is a living document, subject to revision and refinement that will ensure our gains and success are both adaptable and sustainable. A comprehensive impact assessment and review will be performed every three years, in 2022, 2025 and 2028, through application of SEI's monitoring, evaluation and learning system to evaluate our progress in delivering benefits at scale and in recognizing lessons to be drawn upon in the future. The Strategy will guide our research, policy development and capacity development collaborations on environment and development in Myanmar. We invite you to join us on this journey.

### Our Goal

Our goal is to support Myanmar in meeting their commitments to the 2030 Agenda for Sustainable Development – and the associated Sendai Framework for Disaster Risk Reduction 2015-2030 and Paris Agreement on climate change – through collaborative research, policy engagement, capacity building and joint action related to environment and development issues, with specific consideration of gender equality, social equity, environmental rights and poverty reduction.

## Measuring Our Success

- *Research outcomes:* Improved **knowledge** on critical issues related to the water, agriculture and energy sectors, and to support the emerging needs of the country in the fields of natural resources management, environmental conservation, climate change, gender equality, social equity and environmental rights.  
*Indicator:* Increased publications, annually, generated by SEI and partners associated with Myanmar.
- *Policy outcomes:* Improved **natural resource governance**, reduced disaster risk, and enhanced poverty reduction – despite uncertainties related to climate change – with consideration of sustainable livelihoods for all, while ensuring equal and equitable access to natural resources.  
*Indicator:* Increase in number of policies and published policy briefs as well as policy dialogues and engagement efforts that are clear contributions of SEI.
- *Capacity outcomes:* Enhanced **capacities** of state and non-state actors in using rights-based approaches to assess and address socioeconomic and ecological implications among different social groups in ensuring long-term equitable and sustainable development.  
*Indicator:* Increased number of SEI organized or assisted formal capacity training activities.
- *Communications:* Increased **public awareness** and understanding of issues related to environmental conservation, gender equality, social equity, environmental rights, and how to improve environmental sustainability.  
*Indicator:* Increased SEI and partner produced communications and knowledge products including news and features, photo essays, blogs, short films and public awareness events.

## Country Overview

Since 2011, Myanmar has embarked upon a process of political and economic reform that is transforming its economy and society, with the goal of emerging as an important economic entity in ASEAN and the global economy. Myanmar's rich natural resource base, abundant labour and strategic location, wedged between India and China, make the country an attractive destination for foreign investment and in good position to contribute to regional economic integration. Economic growth in Myanmar is expected to decrease to 6.2 percent in 2018/19 from 6.8 percent in 2017/18. Even though growth is predicted to slow down, Myanmar remains one of the fastest-growing economies in Southeast Asia.

But Myanmar is still one of the poorest countries in Asia. With a population of 51.5 million, 25 percent live below the poverty line: of those in poverty 84 percent are in rural areas and disparities across states are pronounced. This pervasive poverty, which is closely associated with geography, lack of infrastructure and ethnicity, is a significant challenge. There is an imbalance in income levels between people living in the river valleys and coastal regions, where the majority ethnic Bamar population lives, and the upland interior and border regions, home to the major indigenous minority populations that include the Shan, Kachin, and Chin. Similarly, there is considerable inequality in access to opportunities and social services across the country and among different social groups. Some public figures continue to sidestep social inequality issues such as gender, ethnicity, class and age. If economic growth is not adequately inclusive, and if efforts to address existing inequality in living standards across gender, different ethnicities and regions fail, the entire reform process could flounder.

Myanmar's total area of 677,000 km<sup>2</sup> is rich in natural resources, including forests, land and water that support a rich profusion of biodiversity. Sustainably developing these resources will be critical in ensuring the equitable and inclusive economic growth needed to alleviate poverty, and to meet the aspirations of its people while fulfilling the country's commitment to the sustainable development goals (SDGs).

Myanmar's youthful population is a key demographic asset that will be critical if it is to transform into a middle-income nation. The 15–28 age group comprises 13 million people, approximately 40 percent of the working population. With appropriate education and training, this youthful assemblage could provide the necessary demographic dividend to drive the country's economic transformation.

In addition to forests, land and water, Myanmar is also rich in natural gas and fisheries. Other notable resources include oil and minerals such as tin, antimony, zinc, copper, tungsten, lead, coal, marble, limestone, and precious stones. It's natural gas-fired plants account for 21 percent of total installed power generation capacity. Though hydropower is currently the main source of electricity generation, Myanmar exports natural gas and it is now the country's most important source of export revenue.

As of 2014, the country's total renewable water resources were 19,317 m<sup>3</sup> per capita per year, higher than nearly all other economies in Asia<sup>1</sup>. Water is a key energy resource for Myanmar, with hydropower accounting for three-quarters of the country's total installed capacity. Myanmar uses only 5 percent of its total available water resources. Of that small proportion, agriculture consumes 90 percent, while industry and domestic use account for the remainder<sup>2</sup>. There is substantial potential for further utilization of water resources for hydropower, irrigation, livestock production and industry, while at the same time maintaining water reserves for nature. Though water utilization is key to economic development, wise management of Myanmar's vast river and aquifer system is necessary to maintain the ecological integrity of the country's diverse ecosystems.

Environmental sustainability is a basic element for consideration by policymakers. One particularly dangerous factor threatening this sustainability in Myanmar is the unregulated use of toxic chemicals in upstream mining operations. The country's rivers support substantial fish stocks, providing considerable potential for aquaculture development in the low-lying river delta areas in its south and central region. In addition, Myanmar has significant marine fishery resources off its more than 1,900 km coastline and within its 382,023 ha of mangroves<sup>3</sup>.

Myanmar's beaches, primary forests and snow-capped mountains, combined with a rich cultural heritage spanning more than 2,000 years are potentially significant tourist attractions. This potential remains under-used. However, increasing tourism would present significant challenges with respect to infrastructure and may need substantial support to ensure appropriate and enforced environmental management plans.

Forest cover is approximately 29 million hectares, or just under 44 percent of Myanmar's total land area<sup>4</sup>. They constitute one of the largest reserves in Southeast Asia still in a pristine state, with closed forests<sup>5</sup> accounting for 37 percent of country's total land area<sup>6</sup>. Forest degradation is steadily driven by agricultural activities, illegal logging and fuelwood collection. Forested areas are also major ecosystems, offering habitats for tropical and subtropical flora and fauna that are inherent local economic resources, as well as essential sources of biodiversity and environmental sustainability for Myanmar and all of Southeast Asia.

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1 Food and Agriculture Organization, 2014. AQUASTAT data (<https://data.worldbank.org/indicator/ER.H2O.INTR.PC?view=map>)

2 Ministry of the Environment, Japan. 2012. Outlook on Water Environmental Management in Asia 2012.

Tokyo

3 Food and Agriculture Organization (FAO) 2012. Fishery and Aquaculture Country Profiles: Myanmar. [http://www.fao.org/fishery/countrysector/FI-CP\\_MM/3/en](http://www.fao.org/fishery/countrysector/FI-CP_MM/3/en)

4 FAO. 2015. Global Forest Resources Assessment 2015 ([https://www.unep-wcmc.org/system/comfy/cms/files/files/000/001/347/original/Myanmar\\_2\\_25\\_10\\_2018.pdf](https://www.unep-wcmc.org/system/comfy/cms/files/files/000/001/347/original/Myanmar_2_25_10_2018.pdf))

5 Closed forests have dense canopies in the upper level, 70-100 percent cover, that allows little sunlight to penetrate to lower levels.

6 Ministry of Agriculture and Irrigation. 2011. Myanmar Agriculture at a Glance. Nay Pyi Taw.

However, deforestation has become a serious problem due to uncontrolled and unsustainable mechanical logging, particularly of high-value teak and other hardwoods. Poor rural communities' reliance on wood for energy further aggravates this situation. Though the country's low level of industrialization has kept carbon emissions relatively low, preventive measures are needed to prevent them from rising too rapidly, as manufacturing production increases.

Myanmar's significant land, water and labour resources provide an opportunity to expand agricultural output and increase the sector's contribution to economic growth. However, this will be tempered by urban pull factors, and rapid industrialization, that will compete for labour as economic development progresses. As such, the agricultural sector as a whole has not grown at the same pace as other sectors, thereby reducing its total contribution to GDP. Approximately 18 percent of the country's total land area of 68 million hectares is used for crop production, with only 18.5 percent of that amount under irrigation. This presents an enormous opportunity to expand irrigated farm output, both at the extensive margins (greater land under cultivation), and the intensive margins (sustainable intensification). Livestock production also holds strong potential to contribute to the growth of the agricultural sector. Almost every rural household has livestock, including cattle, buffalo, pigs and poultry, contributing to household income and constituting a sizeable portion of household capital.

Electricity supply is critical for economic growth and is viewed as a high priority in Myanmar's transformation. There are significant opportunities in diversifying the energy generation mix and supply, to enable a move towards decentralized renewable options. At the same time, Myanmar needs to get the mix and supply balance right, to benefit from the current over-capacity present in the region. Myanmar has the lowest electrification rate in ASEAN, which contributes to national poverty rates, due to lack of access to power needed for rural areas to develop their potential in education, health, agriculture, manufacturing and services. Access to non-polluting and sustainable energy is one of the major determinants for efficient and effective poverty reduction in Myanmar, as has proven true in other countries.

While most of the discussed opportunities and strengths translate to great potential, there are weaknesses that need to be managed. There is a strong commitment to reform, as reflected in the Government's approach to transforming the economy, but Myanmar does not have a track record or substantial experience in sustained reform. In recent decades, its rich natural resources have been poorly managed due to insufficient policies or coordination failures. Lack of public policy and investment support limits the role of eager-to-learn youth's that want to make a meaningful contribution to growth and be integral players in the country's transformation. Weak infrastructure, inadequate public investment in education and health, and a severe skills shortfall remain impediments to the development process and successful reform.

Timely carbon emission standards and other environmental protection measures for environmental integrity and quality of life are needed to avoid much more costly efforts later. Expedient action offers opportunities to accelerate development while avoiding expensive mistakes that neighbouring countries now face. More conservation-oriented approaches to production and consumption, through the establishment of a circular economy, would provide an opportunity for the country to demonstrate its commitment to sustainable development. Additional benefits include potential for the export of techniques and technologies developed to facilitate a circular economy and long-term savings on waste disposal and treatment costs. As Myanmar is not currently locked-in to environmentally unsound processes and systems, choosing a conscious path to sustainability will advance the economy to a point that other countries aspire to reach.

In the development of our approach, we reviewed recent literature<sup>7,8</sup>, and consulted key stakeholders and partners in Myanmar. Common elements emerged, identifying potential areas of engagement that provide a basis for formulating this Strategy. These areas are detailed in Part 2.

## SEI's Past Achievements in Myanmar

To address the development and environmental challenges in the Mekong Region through delivering credible research to inform relevant policies, the Sustainable Mekong Research Network (SUMERNET)<sup>1</sup> has been established since 2005. SUMERNET brings together nearly 70 partners from across the region to lead interdisciplinary, cross-national studies on major policy issues; to engage with policymakers, planners and stakeholders and to build capacity among both researchers and policymakers. The overall aim is to provide scientifically robust and policy-relevant research and to build capacity for those research skills to propagate within the countries and communities involved. SEI has hosted the SUMERNET Secretariat since its inception in 2005. Asia Development Research Institute (ADRI), a registered Myanmar organization formally joined SUMERNET as a member in 2010. Through a collaboration with SEI and other SUMERNET members, ADRI's research has informed relevant discussions among the countries in ASEAN on migration.

Since 2013, SEI has engaged with Myanmar partners and stakeholders through a strong focus on the Central Dry Zone and the Chindwin Basin. Over this period, SEI launched the Ayeyarwady Futures programme in 2013 and Chindwin Futures programme in 2015. These initiatives support sustainable development through evidence-based participatory planning processes in the Ayeyarwady and Chindwin River Basins. They build on past work exploring development pathways and challenges in critical areas of Southeast Asia. The Ayeyarwady Futures programme engaged with state and non-state actors in Myanmar and across the Mekong Region, to assist Myanmar's planning for the sustainable development of the Ayeyarwady River Basins. The Chindwin Futures programme is a collaboration consisting of SEI, Myanmar's Directorate of Water Resources and Improvement of River Systems, the Myanmar Environment Institute (MEI), the Sagaing Regional Government and other partners from governmental and non-governmental agencies from Myanmar and other Mekong Region countries. Both programmes focus on development of decision-support systems, river basin planning, capacity building and multi-stakeholder engagement. A key outcome of the initial work was the commitment of the Sagaing Regional Government, DWIR, MEI and several universities in Myanmar to establish the Chindwin River Basin Organization, which is the first formally-established river basin organization in Myanmar.

Following the success of the Chindwin Futures programme, SEI continued its work in the Chindwin River Basin with funding support from the Critical Ecosystem Partnership Fund (CEPF). This new project called Chindwin Biodiversity and Ecosystem Services (CBES) focused on empowering governmental agencies and civil society organization to mainstream biodiversity and ecosystem services into development plans. CBES will work together with the Chindwin River Basin Organization to facilitate mainstreaming biodiversity conservation into development plans. Through this project, since 2017, SEI has hired a Myanmar National Coordinator hosted by MEI in Yangon to support work on the ground.

In 2017, SEI initiated work on gender issues as part of the International Finance Corporation Powered by Women Initiative, that focuses on improving the operations of hydropower developers in Myanmar through gender-smart initiatives and support for women in various aspects of their businesses. Additionally, SEI has worked with the Union Government of Myanmar and the United Nations Environment Programme to undertake a stocktaking exercise in preparation for its Intended Nationally Determined Contribution as a Party of the United Nations Framework Convention on Climate Change.

<sup>1</sup> Sustainable Mekong Research Network: [www.sumernet.org](http://www.sumernet.org)

<sup>7</sup> Findlay, R., Park, C-Y. and Verbiest, J-P.A. 2014. Myanmar – Unlocking the potential: A strategy for high, sustained and inclusive growth. ADB Economic Working Paper No.437. Asian Development Bank, Metro Manila, Philippines.

<sup>8</sup> Draft Agricultural Strategy 2016. [https://www.myanmarfswg.org/files/uploads/PDF/3rd\\_draft\\_ads\\_december\\_2016.pdf](https://www.myanmarfswg.org/files/uploads/PDF/3rd_draft_ads_december_2016.pdf)



## Part 2: The Research & Policy-informing Agenda

### Addressing Myanmar's Priority Needs

Based on outcomes of our extensive consultations with partners and stakeholders, SEI will build upon its past efforts and seek to grow its presence and influence organically in Myanmar over the coming 10 years. We will enhance our activities in the Chindwin River Basin and expand activities to other areas and to the national level through new research initiatives and engagement in the policy arena.

Core areas of research that build upon SEI Asia's activities in Myanmar and form the focus of our work are highlighted below. These should be seen as indicative of what could be undertaken through this Strategy.

#### Theme 1: Water Resources Management and Agriculture

**Vision: Safe and secure water resources and food security for present and future generations in Myanmar**

**Our Mission: Enhance the capacity of households, communities, industry, agriculture, energy and the environment in Myanmar to achieve water and food security.**

It is vital that Myanmar's significant water resources are managed in a sustainable, integrated manner. This will achieve equity and access for all, as well as drive development. There are differences in water resource availability and accessibility at the district and regional levels, including: lack of water in the Central Dry Zone and salinization/brackish water in the Ayeyarwady Delta; periodic flooding in the deltas; flash floods in the mountainous regions and Dry Zone; and cyclones and storm surges along the coast. All of these drivers affect food security and rural livelihoods. Higher water demand from the agricultural sector and domestic users and an increase in demand for industrial water, as well as the consequences of pollution, are already evident in Myanmar's river systems, for example chemical pollution of the Chindwin River from mining activities. At the same time, a sharp increase in the demand for hydropower, heightened risks of river floods and longer droughts are key pressures on the development of water resources and the country's economy. Effective policies will require integrated planning, implementation and management.

Theme 1 will build upon our current partner and stakeholder engagement and develop new initiatives. We will continue to focus on the Chindwin Basin while expanding to other basins and building collaborative efforts with new partners and alliances. Key areas to explore and build upon are:

#### **1.1. Institutional transformation and transboundary water resources management.**

- 1.1.1. We will continue our engagement and support in developing or improving water-related policies and plans for Myanmar. We will continue to support the Chindwin River Basin Organization through assistance with drafting of institutional policies and standard operating procedures for this fledgling body, and embedding RBOs as part of the institutional arrangements under the oversight of Myanmar's National Water Resources Committee. We

will support the Myanmar Government in its efforts to achieve policy commitments associated with environmental protection and poverty alleviation.

- 1.1.2. Climate change poses a major challenge as it affects water availability and agricultural systems. This is particularly important for the Central Dry Zone area of Sagaing, Mandalay and Magway, as that area's agriculture is almost entirely dependent on surface water irrigation due to low rainfall. Groundwater resources are becoming increasingly important; but there is a major lack of understanding on groundwater extraction rates and usage. We will explore possible frameworks for the establishment of groundwater monitoring systems with partners and investigate options to enhance groundwater recharge using simple and indigenous knowledge, including sand dams, restoration of natural springs, and approaches such as Bhungroos (an innovative water harvesting technique). We will continue to incorporate water quality monitoring, from both a formal and citizen science perspective, on the Chindwin and other rivers within the Chindwin River Basin and seek to expand our efforts to other areas.

## **1.2. Reducing risks from climate change and disasters on water resources and agriculture.**

- 1.2.1. Changes in river morphology associated with the high sediment loads of river systems in Myanmar have significant implications on the navigability of channels that are critical for transportation of people and goods. Modelling changes in river morphology through an understanding of the processes at play, will assist the development of predictive tools to chart the river's course. We will continue to develop and enhance the features of the river morphology tool under development within SERVIR Mekong<sup>9</sup>, and embed it into line agencies to support effective decision-making. We will explore opportunities to promote tools, such as Web-SWARM<sup>10</sup>, in water resource management and provide Myanmar Government water resources staff training and capacity building.
- 1.2.2. We will research foreign direct investment as a means of stimulating agricultural output and the development of export driven markets. Our research will quantify levels of investment by their origin, assess the effects of these investments, and propose policy options to ensure equity and sustainability.
- 1.2.3. We will undertake studies on the perceptions of youth and women in agriculture, identifying impediments to their meaningful and effective engagement. With our partners within line agencies we will develop options for enabling conditions and associated policy reforms that ensure their greater engagement with groups of young people, and that are inclusive across gender, ethnicity and class.
- 1.2.4. We will work to enable all economically active groups, especially women, to engage in agriculture and viable livelihoods through exercising their rights to equitable access to, and control of, productive resources – such as land, water, financial capital and extension services – to realize their aspirations, well-being and a more food-secure future. We will address this current impasse through research to identify gaps, barriers and entry points.
- 1.2.5. Water resources are vital to life and livelihoods, and support social, economic, environment and sustainable development. As people benefit from water services and they can also struggle with water-related disasters, or from altered hydrological systems by building dams, canals, levees and bridges. We need to improve our understanding of human-water interactions. The dynamics of causality and feedback between hydrological and social processes are particularly important in Myanmar, where floods and droughts are common. We will research the interaction and contribution of these flood and drought drivers and the increased hydrological uncertainties associated with a changing climate.

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<sup>9</sup> SERVIR Mekong is a joint initiative by the US agency for International Development (USAID), NASA and five other countries which are Myanmar, Thailand, Cambodia, Laos and Vietnam. The project aims to use the latest technologies to help the Mekong river region protect its vital ecosystem. (<https://servir.adpc.net/>)

<sup>10</sup> Web-SWARM is an online river basin management game, developed in 2017. The game is intended to provide general insights regarding integrated water resources management (<http://hsb.weap-game.net/>)

Our research and policy engagement contributes to the following SDGs:



#### Outcomes:

1. Functional river basin organizations and the legal structures to support the sustainable management and monitoring of water resources
2. Sustainable development of groundwater resources in the dry zone
3. Tools to assist in improved water resources planning and management for floods, droughts and river morphology change
4. Policy reform that leads to alternative livelihood and employment opportunities for youth in rural Myanmar
5. Increased and sustained participation of women and youth in the water resources management and agricultural sector

## Theme 2: Gender, Environment and Development (GED)

**Vision:** Agreed policies that prioritize gender equality, social equity and sustainability, for decisions on people's lives, the economy and the environment

**Our Mission:** Improve people's well-being through gender and socially inclusive sustainable development.

Despite the government's increasing focus on promoting and ensuring gender equality in Myanmar, policy narratives and implementation do not always address the issues, and major challenges persist. Patriarchal social norms perceiving women as inferior to men and designating men as household heads and breadwinners are present at different societal levels, affecting both men and women. The health and education and political sectors continue to have gender gaps: Myanmar has the lowest female participation in parliament among all the Mekong countries. Overall, there is a limited recognition of a rights-based approach that would advance women's rights in livelihood resources such as land, water, finance capital, technologies and skills. Women in Myanmar often disproportionately experience impacts of adverse policies due to existing inequalities such as heavy domestic workloads to ensure family well-being, gender-based violence, and precarious work and housing situations that are exacerbated in times of scarcity. Concurrently, women lack access to, and control over, resources and decision-making arenas that deny them the ability to respond to the adverse effects of environmental or climate change. Yet, opportunities exist, and experiences vary among women. Such variations are contingent on factors such as location, age, ethnicity, marital status and religion, and these factors shift for individuals over time. Recent engagements with the government and international development organizations reveal an openness to strengthen women's participation. A recent opening of space for women's public participation provides some opportunity. However, many challenges remain. Gender equality in Myanmar must be reframed from being a women's issue to being a political issue at subnational and national levels that requires more commitment from government actors. At the same time, socially inclusive policies for integrating other marginalized groups also remain as significant challenges.

## 2.1. Innovative planning and decision-making for empowerment and sustainable and inclusive development of natural resources.

- 2.1.1. Environmental governance in Myanmar is pivotal in shaping the country's democratic and sustainable future. Myanmar's political history shapes environmental justice and governance today. Yet, the environmental justice movement, as well as public environmental actors, often ignores social inequalities resulting from gender, ethnicity, class and age. This is in part associated with the lack of women's representation in the public sphere, as well as in budgetary, public investment and political decision-making. We will support women to fully integrate into the political process and public administration by building capacity, developing enabling environments and supporting the evidence-based policy process, as well as sensitizing line agencies and partners to this issue.
- 2.1.2. Myanmar has a rich natural resource base that includes gems, gold, coal, industrial minerals, oil and natural gas. The exploitation of these resources has severe environmental, social and economic implications. Women are often harmed disproportionately in these processes. Implications range from insecure and poor working conditions, gender pay gaps, livelihood losses as a result of land grabbing, and displacements affecting family and community power balances, in addition to workloads and emotional stress. We will undertake research to understand these gendered consequences and, in partnership with the mining sector and policymakers, develop interventions and approaches that address women's needs and ensure their inclusion in decision-making processes.
- 2.1.3. The GED team will work with other research teams to further identify and address gender issues in their thematic agenda.

Our research and policy engagement contributes to the following SDGs:



### Outcomes:

1. Enabling conditions for transforming gender and social inequality in environmental and resource use and management contexts
2. Integration of gender and social equality into environmental and poverty alleviation policies, actions and initiatives

## Theme 3: Sustainable Energy

**Vision:** A secure and just transition to low-carbon energy systems in Myanmar

**Our Mission:** Support decision makers with improved knowledge and capacity to foster a just transition to low-carbon energy systems that will ensure adequate, reliable and affordable modern energy for all.

Over the next few decades, energy demands in Myanmar are expected to increase significantly as population increases and urbanization and the economy grow. Global commitments to climate mitigation that Myanmar have adopted make a 'business-as-usual' approach to energy increasingly untenable. At the same time, decreasing costs of renewable energy and continued innovation in energy

service delivery models are increasing the competitiveness, suitability and adoptability of low-carbon energy systems at different scales. Furthermore, the unacceptability of development pathways that lead to air pollution, landscape damage and livelihood disruptions is becoming more evident. As well, continued development of expensive and rigid centralized energy systems poses the significant risk of an infrastructure unable to cope with climate and economic shocks. Meanwhile, improving demand-side efficiency and supporting the significant proportion of the population that is still reliant on fuelwood, charcoal and agricultural residues as energy sources for cooking continues to be a growing challenge.

A more flexible and agile approach to energy provision through a policy environment that supports a diversity of technologies and service delivery modes is necessary. This will in turn require increasing skills and capabilities, ensuring systems are adaptable and encouraging the formation of innovative and responsive electrical supply companies.

## Realizing alternative energy pathways

### **3.1 Governance of the energy sector is currently centralized, and the Union Government often takes lead in making decisions and signs energy contracts around the energy projects. Engagement with relevant regional governments in this process should be enhanced. For example, the information that the planning department receives from each Ministry may not always trickle down to departments, resulting in information gaps.**

3.1.1 We will address governance challenges around distribution of responsibilities in energy planning and development through capacity building within line agencies on the use of political economy/ecology analysis, the role of socio-technical approaches and innovation systems thinking, and modelling, specifically using SEI's system for Long-Range Energy Alternatives Planning, popularly known as LEAP.

### **3.2 There is growing public concern over the social and environmental consequences of coal and hydropower development. This presents a challenge for Myanmar's Union Government as the country's energy shortage is significant, particularly in rural areas. Energy needs and access are further shaped by gender, ethnicity, age and class, and women often suffer energy insecurity disproportionately.**

3.2.1 We will analyse and develop different energy access approaches, learning about their challenges and the energy and ecosystem elements necessary for achieving the relevant SDGs. In the context of Myanmar's Intended Nationally Determined Contributions to the Paris Agreement, many opportunities exist for adoption of renewable energy sources, efficiency strategies and household fuel alternatives.

3.2.2 We will work with regional governments to explore local energy planning and identify energy-access interventions, particularly those linked to livelihood strategies, and we will study community and local government empowerment opportunities for energy planning and development.

3.2.3 We will research off-grid and mini-grid solutions to expanding electricity access, including business model/electricity service design that will link to local needs and livelihood strategies, and we will research innovation and diffusion of clean cooking solutions to improve health and well-being as well as reduce pressures on forest resources.

Our research and policy engagement contributes to the following SDGs:



**Outcomes:**

1. Enhanced capacity of line agencies to improve decision-making processes related to Myanmar's energy needs
2. Robust and sustainable energy plans based on renewable sources and decentralized approaches
3. Integration of off-grid and mini-grid systems in the electricity supply to enhance energy security

## Theme 4: Climate Change, Disasters and Development

**Vision:** Reduced disaster risk in the face of climate change across Myanmar

**Our Mission:** Use research, policy engagement and capacity building to reduce vulnerability and enhance individual and community resilience in response to a changing climate.

Myanmar is disaster prone due to seismic activity, fires, floods and drought. Mandalay and the Sagaing regions lie on a fault line and minor earthquakes are frequently reported. It is also prone to fires and droughts due to being situated in the Central Dry Zone. Flooding during July and August is common due to the large volumes of water discharged through Myanmar's extensive river systems. Climate change is expected to affect the frequency and intensity of floods and droughts in the coming decades. The impacts of climate change and disasters on Myanmar's population vary, and are contingent on social identities such as gender, age, disability, wealth and ethnicity. Farmers and communities that base their livelihoods on water and the river suffer the most from floods and droughts. This is particularly true for women, who often have less access to adaptation and disaster risk reduction (DRR) measures.

Both the government and public lack awareness of DRR planning and initiatives, particularly in the context of climate change. Disaster management, preparedness and response in Myanmar still need to be further enhanced, in line with the priorities of the Sendai Framework for DRR (2015-2030). The most acute vulnerabilities are associated with gender inequality and social inequity. Building resilience for this community includes identifying women's needs, addressing issues of gender-based and ethnic violence, ensuring access to decision-making, and responding to the needs of at-risk communities. Solutions must also address the threats experienced by the poor residing in hazard-prone and marginal settlements, in addition to the needs of indigenous peoples.

### 4.1. Knowledge that will enable poor and at-risk communities to anticipate, absorb and adapt to climate change and disaster risk impacts.

- Research rights-based approaches to protect persons displaced by disasters. We will contribute to meeting the challenges faced by communities affected by disaster and develop interventions to address damaging impacts.

#### 4.2. Identification of options to manage residual risk associated with disasters and climate change.

- Research on the relationship between sustainable development, disasters and climate change. By understanding trade-offs in disasters and development planning and post-disaster recovery and reconstruction, we will support policies that help reduce vulnerabilities and build resilience. This research will be undertaken through the International Centre of Excellence on Transforming Development and Disaster Risk.

#### 4.3. Capacity building for government and civil society to foster inclusive and effective responses to the challenges of disasters and climate change.

- Support Myanmar in national and subnational DRR planning aligned with the Sendai Framework for DRR, and to realize adaptation-related commitments associated with Myanmar's Intended Nationally Determined Contributions to the Paris Agreement. The Theme will work with Ministries to design a monitoring and evaluation framework for Myanmar's Contribution implementation. We will build coherence in Myanmar's SDG targets implementation and will assist in mapping the interactions of various targets related to DRR and adaptation.

Our research and policy engagement contributes to the following SDGs:



#### Outcomes:

1. Policies and interventions that protect displaced individuals and communities in Myanmar affected by disasters and climate change
2. Increased capacities of line agencies to fulfil Myanmar's commitments to the Paris Agreement, implement the Sendai Framework, and ensure it meets its SDG targets

#### Other research topics and themes:

Additional research topics and themes that SEI identifies as focus points will be considered, depending on Myanmar's needs and SEI's capacity at the time.



Michai Juntavaro

## Part 3: Operationalization of the Strategy

SEI Asia has a diverse team of international experts and partners in Bangkok and Yangon. We apply scientific research findings through participatory approaches to co-develop and share knowledge, build partnerships, and influence policy for resilient development. Our current Strategy is supported by three interlinked pillars that inform solution-driven science for evidence-based policy engagement with the explicit aim to strengthen the capacity and skills of our partners. These pillars contribute to sustainable development and positive outcomes for all. To this end, we focus on gender equality and social equity, climate change adaptation, disaster risk reduction, water insecurity and integrated water resources management, agrifood systems and renewable energy.

We support socially inclusive and sustainable development that includes decision and policy development processes that are informed by research, represent the interests of different social groups, and address key drivers of gender and social injustice. We work with government, civil society actors and academia, and apply our knowledge through engagement with networks of researchers, practitioners, advocates, and communities. We contribute to efforts focused on supporting on gender equality, inclusion and participation to ensure sustainable and equal access to natural resources for all, while minimizing environmental impacts and social risks.

SEI is known for its development of a range of decision-support tools for sustainable development. We offer free licences for these tools to governments and non-governmental organizations from developing countries to increase their access to decision-support systems that facilitate strategic planning for resource use.

### Strategic Partnership Approach

As our long-term goal for SEI's contribution to Myanmar is ambitious, it is critical to build new partnerships, as well as nurture our existing collaborations with concerned state and non-state actors. Through our research areas, we will build on our current long-term partnerships and collaborative agreements with state agencies, Directorate of Water Resources and Improvement of River Systems and the Sagaing Regional Government and non-state agencies (e.g. MEI, ADRI), within our research areas. We will work to expand partnerships with line agencies and contribute to partner initiatives that are related to the SEI Asia research, policy and capacity development agenda.

SEI will support our Myanmar partners as they take a leading role in natural resource management and informed decision-making, while our partnership approach creates opportunities for capacity building of state and civil society actors. Myanmar's partners will have an opportunity to lead or co-lead joint activities with regional and international experts from SEI and its collaborative networks. We will focus on this as SEI key operating principle in the next 10 years.

### Funding

The current funding landscape is complex, unpredictable and fragmented, with a strong emphasis on short-term investments for highly specific issues. Sustained and secure investment will be essential to ensure we can help Myanmar meet emerging challenges such as climate change and resource scarcity and build a sustainable future.

We will expand our funding base to include traditional and non-traditional donors. This will include seeking financial support from a wide range of donors through engaging more effectively with the private sector and growing potential opportunities, while exploring innovative financing models. At the same time, we will continue to pursue traditional funding avenues for collaborative research through our partnerships with line agencies, NGOs, development banks and other organizations.

We will enhance our capabilities in donor intelligence for Myanmar and increase our access to open calls for proposals to support Myanmar work. Additionally, we will engage with development agencies that focus on Myanmar. We will undertake this in partnership with the public and private sectors while securing alignment with Myanmar's national development agenda.

We will develop stronger collaborative partnerships with donor agencies that focus on up-scaling results, and deliver research outputs and innovations that are relevant and progressive. We will continue to pursue strong ties with development agencies and decision makers to drive our work forward in bringing positive change to Myanmar's people and communities.



Wichai Juntavaro



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